

## (12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

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60/141,160 25 June 1999 (25.06.1999) US(71) Applicant (for all designated States except US): THE  
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(US).(81) Designated States (national): AE, AL, AM, AT, AU, AZ,  
BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK,  
DM, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL,  
IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU,  
LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT,  
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patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE,  
IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG,  
CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).

## Published:

- With international search report.
- Before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments.

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: MOLECULAR CORRELATES OF SCHIZOPHRENIA AND METHODS OF DIAGNOSING SCHIZOPHRENIA VIA THESE MOLECULAR CORRELATES

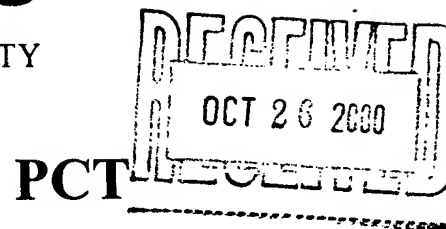
(57) Abstract: Molecular correlates of genes and expressed sequence tags useful in the diagnosis and monitoring of treatment of patients suffering from schizophrenia are provided.

WO 01/00882 A1

# PATENT COOPERATION TREATY

From the INTERNATIONAL SEARCHING AUTHORITY

<b>To: JANE MASSEY LICATA</b> <b>LAW OFFICES OF JANE MASSEY LICATA</b> <b>66 E. MAIN STREET</b> <b>MARLTON, NEW JERSEY 08053</b>	
Docket System <input checked="" type="checkbox"/> Status Report <input checked="" type="checkbox"/> Docket Book <input checked="" type="checkbox"/>	



## NOTIFICATION OF TRANSMITTAL OF THE INTERNATIONAL SEARCH REPORT OR THE DECLARATION

(PCT Rule 44.1)

Date of Mailing <i>(day/month/year)</i>	<b>24 OCT 2000</b>
Applicant's or agent's file reference PENN-0718	<b>FOR FURTHER ACTION</b> See paragraphs 1 and 4 below
International application No. PCT/US00/40266	International filing date <i>(day/month/year)</i> 21 JUNE 2000
Applicant The Trustees of the University of Pennsylvania	

1. ☒ The applicant is hereby notified that the international search report has been established and is transmitted herewith.  

**Filing of amendments and statement under Article 19:**  
 The applicant is entitled, if he so wishes, to amend the claims of the international application (see Rule 46):  
  
**When?** The time limit for filing such amendments is normally 2 months from the date of transmittal of the international search report; however, for more details, see the notes on the accompanying sheet.  
  
**Where?** Directly to the International Bureau of WIPO  
                     34, chemin des Colombettes  
                     1211 Geneva 20, Switzerland  
                     Facsimile No.: (41-22) 740.14.35  
  
 For more detailed instructions, see the notes on the accompanying sheet.
  
2. ☐ The applicant is hereby notified that no international search report will be established and that the declaration under Article 17(2)(a) to that effect is transmitted herewith.
  
3. ☐ With regard to the protest against payment of (an) additional fee(s) under Rule 40.2, the applicant is notified that:
 

☐ the protest together with the decision thereon has been transmitted to the International Bureau together with the applicant's request to forward the texts of both the protest and the decision thereon to the designated Offices.  
☐ no decision has been made yet on the protest; the applicant will be notified as soon as a decision is made.
  
4. **Further action(s):** The applicant is reminded of the following:
 

Shortly after 18 months from the priority date, the international application will be published by the International Bureau. If the applicant wishes to avoid or postpone publication, a notice of withdrawal of the international application, or of the priority claim, must reach the International Bureau as provided in rules 90 bis 1 and 90 bis 3, respectively, before the completion of the technical preparations for international publication.  
  
 Within 19 months from the priority date, a demand for international preliminary examination must be filed if the applicant wishes to postpone the entry into the national phase until 30 months from the priority date (in some Offices even later).  
  
 Within 20 months from the priority date, the applicant must perform the prescribed acts for entry into the national phase before all designated Offices which have not been elected in the demand or in a later election within 19 months from the priority date or could not be elected because they are not bound by Chapter II.

Name and mailing address of the ISA/US Commissioner of Patents and Trademarks Box PCT Washington, D.C. 20231  Facsimile No. (703) 305-3230	Authorized officer <div style="text-align: center;"> <b>JEHANNE SOUKAYA</b> </div> Telephone No. (703) 308-1235
-----------------------------------------------------------------------------------------------------------------------------------------------------------	--------------------------------------------------------------------------------------------------------------------

# PATENT COOPERATION TREATY

From the INTERNATIONAL SEARCHING AUTHORITY

To: JANE MASSEY LICATA  
LAW OFFICES OF JANE MASSEY LICATA  
66 E. MAIN STREET  
MARLTON, NEW JERSEY 08053

## PCT

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Date of Mailing  
(day/month/year)

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Applicant's or agent's file reference  
PENN-0718

**FOR FURTHER ACTION** See paragraphs 1 and 4 below

International application No.  
PCT/US00/40266

International filing date  
(day/month/year)  
21 JUNE 2000

Applicant  
The Trustees of the University of Pennsylvania

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Name and mailing address of the ISA/US  
Commissioner of Patents and Trademarks  
Box PCT  
Washington, D.C. 20231

Facsimile No. (703) 305-3230

Authorized officer

JEHANNE SOUJATA

Telephone No. (703) 308-1235

# PATENT COOPERATION TREATY

## PCT

### INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference <b>PENN-0718</b>	<div style="display: flex; justify-content: space-between;"> <div>FOR FURTHER ACTION</div> <div>see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below.</div> </div>	
International application No. <b>PCT/US00/40266</b>	International filing date (day/month/year) <b>21 JUNE 2000</b>	(Earliest) Priority Date (day/month/year) <b>25 JUNE 1999</b>
Applicant The Trustees of the University of Pennsylvania		

This international search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This international search report consists of a total of 4 sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

**1. Basis of the report**

- a. With regard to the language, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.
  - ☐ the international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).
- b. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international search was carried out on the basis of the sequence listing:
  - ☐ contained in the international application in written form.
  - ☐ filed together with the international application in computer readable form.
  - ☐ furnished subsequently to this Authority in written form.
  - ☐ furnished subsequently to this Authority in computer readable form.
  - ☐ the statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
  - ☐ the statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.
- 2. ☐ Certain claims were found unsearchable (See Box I).
- 3. ☐ Unity of invention is lacking (See Box II).
- 4. With regard to the title,
  - ☒ the text is approved as submitted by the applicant.
  - ☐ the text has been established by this Authority to read as follows:

**5. With regard to the abstract,**

- ☒ the text is approved as submitted by the applicant.
- ☐ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

**6. The figure of the drawings to be published with the abstract is Figure No. \_\_\_\_\_**

- ☐ as suggested by the applicant. ☐ None of the figures.
- ☐ because the applicant failed to suggest a figure.
- ☐ because this figure better characterizes the invention.

## INTERNATIONAL SEARCH REPORT

International application No.  
PCT/US00/40266

## A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) :C12Q 1/68; C12P 19/34; CO7H 21/04

US CL :435/6, 91.1; 536/23.1

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 435/6, 91.1; 536/23.1

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

Please See Extra Sheet.

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	EASTWOOD S. L. et al. Hippocampal and Cortical Growth-Associated Protein-43 Messenger RNA in Schizophrenia. Neuroscience. 1998. Vol 86. pages 437-448, especially abstract.	1-3
X	SOKOLOV B.P. Expression of MNDAR1, GluR1, GluR7, and KA1 Glutamate Receptor mRNAs is Decreased in Frontal Cortex of 'Neuroleptic-Free' Schizophrenics: Evidence on Reversible Up-Regulation by Typical Neuroleptics. Journal of Neurochemistry. 1998. Vol 71. pages 2454-2464, especially abstract.	1
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Y		2-3

☒ Further documents are listed in the continuation of Box C. ☐ See patent family annex.

* Special categories of cited documents:	*T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
*A* document defining the general state of the art which is not considered to be of particular relevance	*X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
*E* earlier document published on or after the international filing date	*Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
*L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	*Z* document member of the same patent family
*O* document referring to an oral disclosure, use, exhibition or other means	
*P* document published prior to the international filing date but later than the priority date claimed	

Date of the actual completion of the international search

27 SEPTEMBER 2000

Date of mailing of the international search report

24 OCT 2000

Name and mailing address of the ISA/US  
Commissioner of Patents and Trademarks  
Box PCT  
Washington, D.C. 20231

Facsimile No. (703) 305-3230

Authorized officer

JEHANNE SOUAYA

Telephone No. (703) 308-1235

## INTERNATIONAL SEARCH REPORT

International application No.  
PCT/US00/40266

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X ---- Y	GLANTZ L.A. et al. Reduction of Synaptophysin Immunoreactivity in the Prefrontal Cortex of Subjects with Schizophrenia. Archives of General Psychiatry. October 1997. Vol 54. pages 943-952, especially abstract.	1 ---- 2-3

# INTERNATIONAL SEARCH REPORT

International application No.  
PCT/US00/40266

## B. FIELDS SEARCHED

Electronic data bases consulted (Name of data base and where practicable terms used):

STN, Medline, Caplus, Uspatful

search terms: schizophrenia, diagnose, microarray, adaptin, synaptic vessicle transporter, synaptotagmin 1, gynaptotagmin IV, Gaba transporter 1

## INTERNATIONAL SEARCH REPORT

International application No.

PCT/US00/40266

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Electronic data bases consulted (Name of data base and where practicable terms used):

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US CL : 435/6, 91.1; 536/23.1

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 435/6, 91.1; 536/23.1

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)  
Please See Extra Sheet.

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

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X	SOKOLOV B.P. Expression of MNDAR1, GluR1, GluR7, and KA1 Glutamate Receptor mRNAs is Decreased in Frontal Cortex of 'Neuroleptic-Free' Schizophrenics: Evidence on Reversible Up-Regulation by Typical Neuroleptics. Journal of Neurochemistry. 1998. Vol 71. pages 2454-2464, especially abstract.	1
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*A* document defining the general state of the art which is not considered to be of particular relevance	*X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
*E* earlier document published on or after the international filing date	*Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
*L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	* & * document member of the same patent family
*O* document referring to an oral disclosure, use, exhibition or other means	
*P* document published prior to the international filing date but later than the priority date claimed	

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## INTERNATIONAL SEARCH REPORT

International application No.  
PCT/US00/40266

## C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X ---- Y	GLANTZ L.A. et al. Reduction of Synaptophysin Immunoreactivity in the Prefrontal Cortex of Subjects with Schizophrenia. Archives of General Psychiatry. October 1997. Vol 54. pages 943-952, especially abstract.	1 ---- 2-3

# INTERNATIONAL SEARCH REPORT

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PCT/US00/40266

## B. FIELDS SEARCHED

Electronic data bases consulted (Name of data base and where practicable terms used):

STN, Medline, Caplus, Uspatful  
search terms: schizophrenia, diagnose, microarray, adaptin, synaptic vessicle transporter, synaptotagmin 1,  
gynaptotagmin IV, Gaba transporter 1

## PATENT COOPERATION TREATY

PCT

## NOTIFICATION OF ELECTION

(PCT Rule 61.2)

From the INTERNATIONAL BUREAU

To:

Commissioner  
 US Department of Commerce  
 United States Patent and Trademark  
 Office, PCT  
 2011 South Clark Place Room  
 CP2/5C24  
 Arlington, VA 22202  
 ETATS-UNIS D'AMERIQUE

in its capacity as elected Office

<b>Date of mailing (day/month/year)</b> 22 August 2001 (22.08.01)	<b>Applicant's or agent's file reference</b> PENN-0718
<b>International application No.</b> PCT/US00/40266	
<b>International filing date (day/month/year)</b> 21 June 2000 (21.06.00)	<b>Priority date (day/month/year)</b> 25 June 1999 (25.06.99)
<b>Applicant</b> EBERWINE, James, H. et al	

1. The designated Office is hereby notified of its election made:



in the demand filed with the International Preliminary Examining Authority on:

12 January 2001 (12.01.01)



in a notice effecting later election filed with the International Bureau on:

2. The election ☒ was

was not

made before the expiration of 19 months from the priority date or, where Rule 32 applies, within the time limit under Rule 32.2(b).

The International Bureau of WIPO  
 34, chemin des Colombettes  
 1211 Geneva 20, Switzerland

Facsimile No.: (41-22) 740.14.35

Authorized officer

Eugénia SANTOS (Fax 338.87.40)

Telephone No.: (41-22) 338.83.38